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09/471,806	12/23/1999	MARTA M RAMBAUD		7978

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FARKAS & MANELLI PLLC  
2000 M STREET N W 7TH FLOOR  
WASHINGTON, DC 200363307

EXAMINER

BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 01/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/471,806

Applicant(s)

RAMBAUD ET AL.

Examiner

Emmanuel Bayard

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 December 1999.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2631

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by

Hoogendoorn et al U.S. Patent No 5,559,642.

As per claim 1, Hoogendoorn et al discloses a digital adaptive equalizer for a data path communication comprising: a first programmable filter capable (see figs. 8a, 8b element EQi) of being programmed to implement any of a plurality of transfer functions (see fig.8 b elements 55 and col.9, lines 35-38) ; a filter selector (see figs. 8a 8b elements "S" and SEL 52 and col.9, lines 39-50) to select any one of said plurality of transfer functions; a second digital filter (see fig.8b element DF and col.9, line 33) for receiving an output from said first programmable filter.

As per claim 4, the equalizer of Hoogendoorn does include a transfer function (see col.8, lines 26-35 and col.9, line 35).

As per claim 11, the digital filter of Hoogendoorn inherently includes at least four sets of coefficients.

Art Unit: 2631

As per claim 12, the digital filter of Hoogendoorn inherently includes selecting one of at least four sets of coefficients based on an error signal.

As per claim 13, the digital filter of Hoogendoorn inherently includes of setting an initial value to at least said plurality of coefficients.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-3, and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over

Hoogendoorn et al U.S. Patent No 5,559,642 in view of Simmons et al U.S. Patent No 6,195,414

B1.

As per claim 2, Hoogendoorn discloses all the features of the claimed invention except a digital filter having an IIR.

Simmons et al teaches a digital filter having a IIR (infinite impulse response) (see col.11, lines 51-52).

It would have been obvious to one of ordinary skill in the art to implement the IIR of Simmons into Hoogendoorn as to remove images created during the immediately prior to interpolation and match a frequency response characteristics of a desired receive filter as taught by Simmons (see col.11, lines 50-55).

Art Unit: 2631

As per claim 3, Hoogendoorn discloses all the features of the claimed invention except a digital filter having an FIR.

Simmons et al teaches a digital filter having a FIR (finite impulse response) (see col.11, lines 558-60).

It would have been obvious to one of ordinary skill in the art to implement the FIR of Simmons into Hoogendoorn as to counter adverse high frequency emphasis imparted by effectively up sampling that occurred during interpolation as taught by Simmons (see col.11, lines 61-63).

As per claim 10, Hoogendoorn discloses all the features of the claimed invention except a digital converter to digitize a received substantially raw T1/E1 signal for input to said digital adaptive equalizer.

Simmons et al teaches a digital filter having a digital converter to digitize a received substantially raw T1/E1 signal for input to said digital adaptive equalizer. (see fig.2a element 288 and col.8, line 33 and col.10, lines 57-61 and col.5, line 53 and col.6, line 46).

It would have been obvious to one of ordinary skill in the art to implement the a digital converter to digitize a received substantially raw T1/E1 signal for input to said digital adaptive equalizer of Simmons into Hoogendoorn as to produce a stream of 16 bit linear digital samples at 32 kHz as taught by Simmons (see col.10, lines 57-58).

***Claim Rejections - 35 USC § 103***

Art Unit: 2631

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoogendoorn et al U.S. Patent No 5,559,642 in view of Yashima et al U.S. Patent No 5,953,431.

As per claim , Hoogendoorn discloses all the features of the claimed invention except a transfer function based on Least Means Square algorithm.

Yashima teaches a transfer function based on Least Means Square algorithm (see figs. 15, 16 element 55 and col.13, lines 11-40).

It would have been obvious to one of ordinary skill in the art to implement the transfer function based on Least Means Square algorithm of Yashima into Hoogendoorn as to repeatedly update the coefficient data H as taught by Yashima (see col.13, lines 16-18).

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2631

8. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoogendoorn et al U.S. Patent No 5,559,642 in view of Boyd et al U.S. Patent No 6,438,162 B1.

As per claim 6, Hoogendoorn discloses all the features of the claimed invention except a T1 communication path and an E1 communication path.

Boyd et al teaches a digital filter having a T1 communication path and an E1 communication path (see abstract and col.2, line 35).

It would have been obvious to one of ordinary skill in the art to implement the a T1 communication path and an E1 communication path of Boyd into Hoogendoorn so minimal configuration by the user could be implemented while using high speed applications.

As per claims 7-8, the equalizer of Boyd does include twisted pair or coaxial cable (see fig.1 element 1 and col.3, lines 21, 51,). Furthermore implementing such cable into Hoogendoorn would have been obvious to one skilled in the art as to provide output signal which ideally has a waveform identical to that originally transmitted.

As per claim 9, the communication path of Hoogendoorn would include a wireless medium so that any digital coded signal could be accurately equalized over free space.

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

Art Unit: 2631

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. Claims 14-17, 20-25 and 27-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Simmons et al U.S. Patent No 6,195,414 B1.

As per claim 14, Simmons disclose a method of digitally equalizing a received T1/E1 data signal comprising: firstly filtering said received T1/E1 data signal using a first digital filter (see fig.3 element 340 and col.11, lines 50-55); a compensator (see fig.3 element 343 and col.11, lines 58-65) is functionally equivalent to the claimed (adaptively adjusting) an output of said first digital filter to accurately match an inverse response of a transmission channel used to transmit said received data signal.

As per claim 15, the system of Simmons inherently includes detecting a periodic pattern.

As per claim 16, the system of Simmons inherently includes freezing said adaptive adjustment.

As per claims 17 and 25, the system of Simmons includes an IIR (see col.11, line 52).



Art Unit: 2631

As per claims 20, 21 and 27, the system of Simmons includes a second filter (see col.11, line 59).

As per claim 22, the system of Simmons inherently includes adaptively adjusting coefficients for said finite impulse response.

As per claim 23, the system of Simmons inherently includes a least mean square algorithm.

As per claim 24, the system of Simmons includes means for firstly filtering said received T1/E1 data signal using a first digital filter (see fig.3 element 340 and col.11, lines 50-55); a compensator (see fig.3 element 343 and col.11, lines 58-65) is functionally equivalent to the claimed (means for adaptively adjusting) an output of said first digital filter to accurately match an inverse response of a transmission channel used to transmit said received data signal.

As per claim 28, the system of Simmons includes a FIR (see col.11, line 59).

As per claim 29, the system of Simmons inherently includes adaptively adjusting coefficients for said finite impulse response.

As per claim 30, the system of Simmons inherently includes a least mean square algorithm.

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2631

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 18-19 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Simmons et al U.S. patent No 6,195,414 B1 in view of Hoogendoorn et al U.S. Patent No 5,559,642.

As per claims 18 and 26, Simmons disclose all the features of the claimed invention except selects and implements one of a plurality of transfer function coefficient available for said digital filter.

Hoogendoorn teaches step of selecting and implementing one of a plurality of transfer function coefficient available for said digital filter (see figs. 8a 8b elements "S" and SEL 52 and col.9, lines 39-50).

It would have been obvious to one of ordinary skill in the art to implement the selecting and implementing of step Hoogendoorn into Simmons as to realize the first filtering as taught by Hoogendoorn (see col.9, lines 44-45).

As per claim 19, it would have obvious to one skill in the art to implement the step of setting an initial value to said plurality of transfer function into Simmons as to enhance the system capability to accurately compensate the digitalized signal in the equalizer.

### *Conclusion*

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Art Unit: 2631

Page et al U.S. Patent No 6,321,246 B1 teaches a linear phase FIR sinc.

Kim U.S. Patent No 6,246,444 B1 teaches a digital and analog TV.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is (703) 308-9573. The examiner can normally be reached on Monday-Thursday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham, can be reached on (703) 305-4378. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3800.



Emmanuel Bayard

Patent Examiner

January 16, 2003